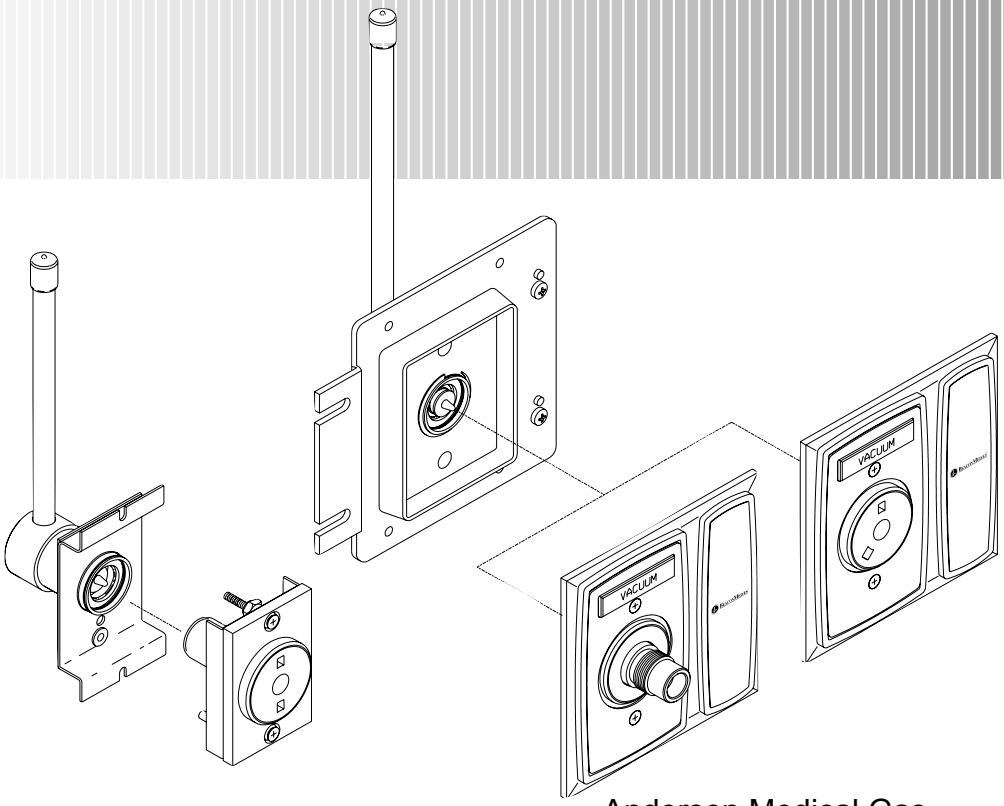
Service Manual

Gemini, Diamond® II and Diamond® III **Medical Gas Outlets for Concealed Piping and Console Applications**



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BEACONMEDÆS®

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Introduction

This manual provides information needed to service BeaconMedæs Gemini, Diamond® II and Diamond® III Gas Outlets. Information contained in this manual is intended for use by technicians or personnel qualified to repair and service medical equipment.

Definition of Statements

Statements in this manual preceded by the following words are of special significance.

WARNING: Means there is a possibility of injury or death to yourself or others.

CAUTION: Means there is a possibility of damage to the unit or other property.

NOTE: Indicates points of particular interest for more efficient and convenient operation.

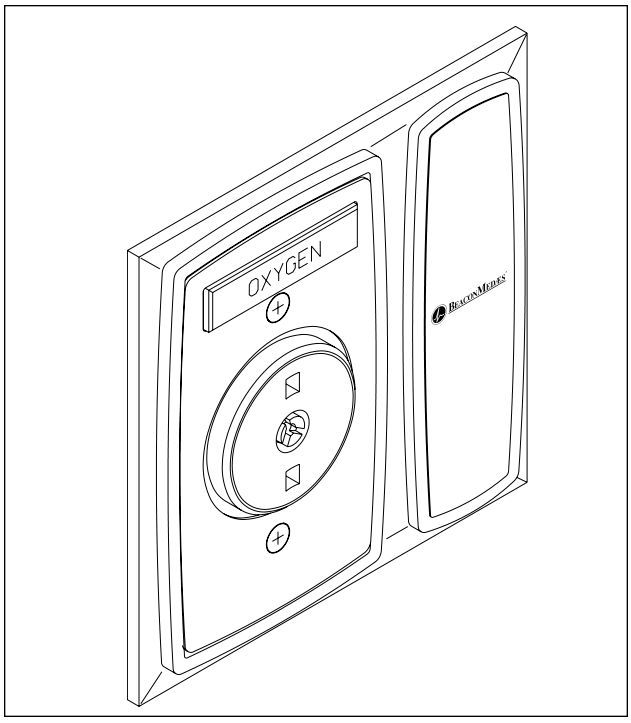
General Product Description

BeaconMedæs medical gas and vacuum quick-connect outlets provide a means of connecting to medical gas piping system. When appropriate adapter is inserted into outlet, primary valve is opened, permitting gas flow. Mechanical latch secures adapter in outlet. Primary seal closes when adapter is removed.

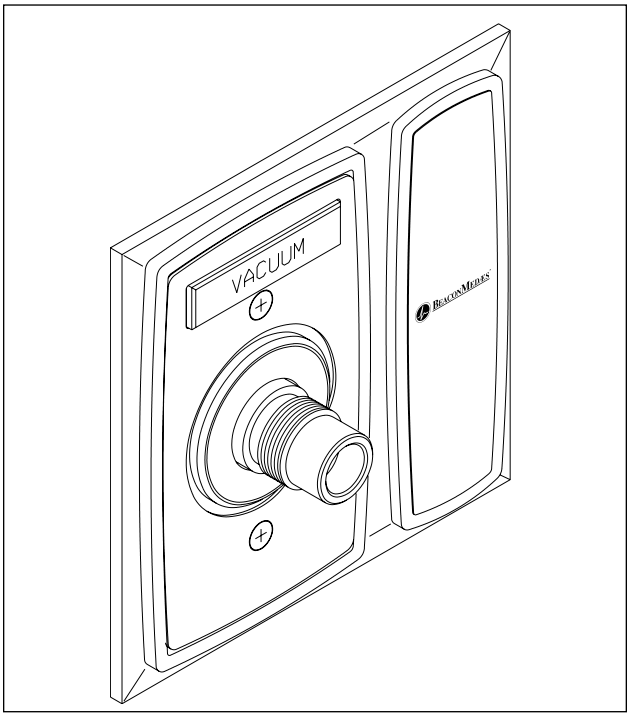
Outlets are typically for oxygen, nitrous oxide, air, or vacuum and have been cleaned for indicated service.

DISS outlets are typically used in ceilings of operating rooms or in place of quick-connect outlets. Connection to outlet is by means of a nut and nipple. Gas-specific indexing to prevent accidental connection to wrong service is accomplished by a series of interference diameters in accordance with Diameter-Index Safety System (DISS) published by Compressed Gas Association (CGA) in Standard V-5. Nipple opens primary valve as nut is tightened to secure nipple in outlet. Primary valve closes when nipple is removed.

⚠ WARNING:
Do not use oil on adapters or outlets.



Gemini Concealed Quick-Connect Front Body



Gemini Concealed DISS Front Body

Tools and Service Materials

Description	Manufacturer
Lubricant	Krytox® GPL205 BeaconMedæs P/N 6812-2000-403
No. 2 Phillips screwdriver	Local source
No. 2 Flat-blade screwdriver	Local source
Oxygen compatible leak detector solution	Sherlock or equivalent

Cleaning and Lubrication

BeaconMedæs outlets are cleaned for oxygen or the indicated service. Exposed surfaces of outlets may be cleaned with a mild detergent solution or wiped with a disinfectant used for patient room surfaces that is compatible with acetal and nylon plastic, anodized aluminum, and die cast zinc.

Lubricate elastomer seals sparingly with Krytox® GPL205. Refer to Tools and Service Materials. **DO NOT USE OIL**.

Inspection and Testing

Medical gas outlets in high-use areas should be inspected at least every six months and more frequently if outlets are used daily. All outlets should be inspected at least once a year.

Follow National Fire Protection Association Standard 99, 99C “Gas and Vacuum Systems,” and Canadian Standards Association, Standard Z 305.1 “Nonflammable Medical Gas Piping Systems” requirements and methods for periodic testing and maintenance of medical gas and vacuum systems.

Outlet Identification

Before servicing medical gas outlets, it is very important to identify exact type and vintage of outlet.

Wall Outlets

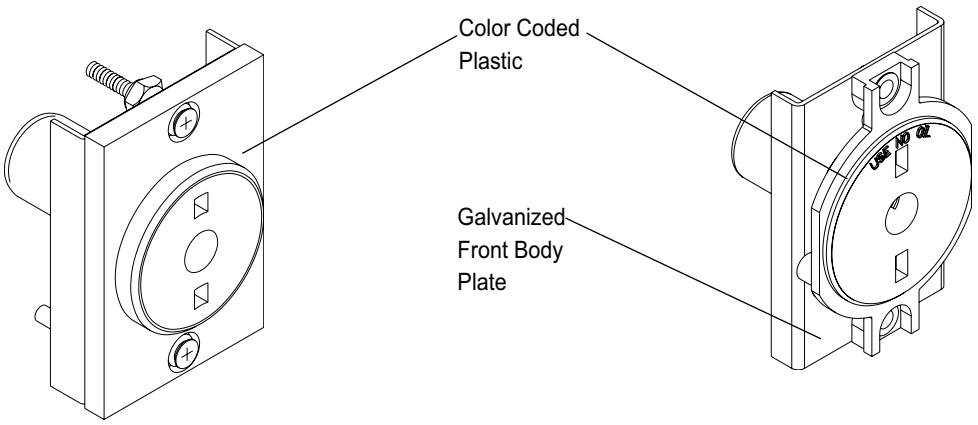
Gemini wall outlets are identified by a Beacon Medical or BeaconMedæs logo on right hand side of outlet.

Diamond® III/DISS III wall/ceiling outlets may be identified by the words “Hill-Rom” or “Medæs” cast into cover plate on lower right hand side and Model No. 300 series or 400 series on back side of cover plate.

Diamond® II wall/ceiling outlets are identified by Model A30 series on back side of cover plate.

Console Outlets

Remove console cover plate to expose front body.



Gemini Console Front Body

Diamond® III Console Front Body

Gemini console outlets will appear as shown above. Front body will have a solid rectangle of color coded plastic approximately 1 7/8” wide x 2 3/4” tall. Raised circular keying portion of front body will rise approximately .200”.

Diamond® III console outlets will appear as shown above. Front body will be easily identified by appearnace of galvanized front body plate visible in corners.

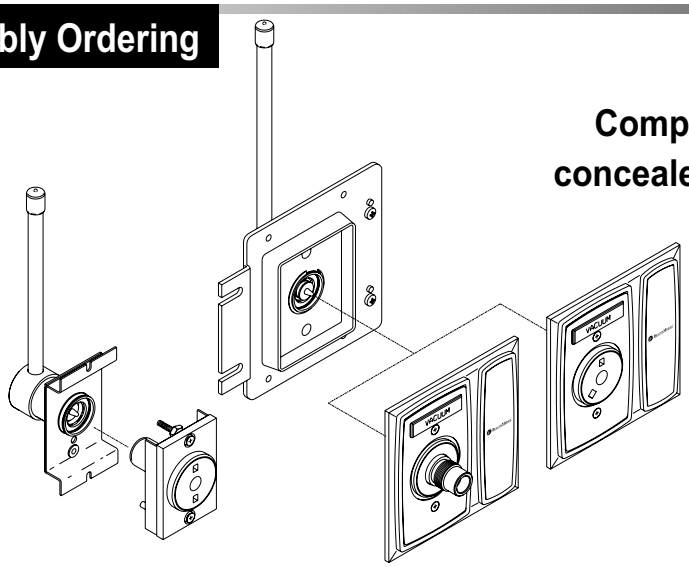
Diamond® II Medical Gas Outlets

Diamond® II medical gas outlets must be upgraded to Gemini Medical gas outlets.

Upgrade of Diamond II® Medical Gas Outlets

Rough-in assembly must be upgraded to accept Gemini front body. This requires installation of a new spring, secondary check, o-ring, rubber seal and retaining ring. Order one Secondary Check Repair Kit, P/N 6-290802-PG for pressure service or 6-290803-PG for vacuum or WAGD service, and 10 each of Secondary Check, P/N 6-525344-00 for every 10 outlets to be upgraded Order one each of Gemini or DISS finish assembly (ref. page 6) for each corresponding gas service.

Outlet Assembly Ordering



Complete assemblies for concealed piping and console applications.

Gemini Assembly Numbers			
Outlet Type	Gas Service	Rough-in Assembly	Finish Assembly
Gemini Concealed Quick-Connect	Oxygen	6-234510-00	6-234610-00
	Nitrous Oxide	6-234511-00	6-234611-00
	Air	6-234512-00	6-234612-00
	Vacuum	6-234513-00	6-234613-00
	WAGD	6-234519-00	6-234619-00
	Vacuum Slide	6-234500-00	6-234600-00
	Blank	6-234500-00	6-234601-00
Gemini Concealed DISS	Oxygen	6-234510-00	6-234710-00
	Nitrous Oxide	6-234511-00	6-234711-00
	Air	6-234512-00	6-234712-00
	Vacuum	6-234513-00	6-234713-00
	Nitrogen	6-234514-00	6-234714-00
	WAGD	6-234519-00	6-234719-00
	Carbon Dioxide	6-234520-00	6-234720-00
Gemini* Console Quick-Connect	Oxygen	6-234410-00	6-234810-00
	Nitrous Oxide	6-234411-00	6-234811-00
	Air	6-234412-00	6-234812-00
	Vacuum	6-234413-00	6-234813-00
	WAGD	6-234419-00	6-234819-00
DISS Console*	Oxygen	6-234410-00	0221-3999-800
	Air	6-234412-00	0221-3999-803
	Vacuum	6-234413-00	0221-3999-802

*Finishing plates are not supplied with these assemblies.

Notify appropriate hospital personnel when performing service or maintenance to medical gas systems. Consult Troubleshooting Guide to determine required repair. Outlets incorporate a primary valve and secondary check. Secondary check prevents system gas from escaping when primary valve is removed for service. Refer to Replacement Components for identification of replacement part numbers.

Quick-Connect and DISS Valve Assemblies (Primary Valve)

Quick-connect and DISS valves may be removed for replacement of seals and some components without interrupting service to other outlets in piping system. To check a quick connect or DISS valve for leaks, apply leak detector solution at primary valve opening both with and without adapter connected. Bubbles indicate pressure leaks. Large leaks may be audible.

NOTE:
Replace all elastomer seals whenever outlets are disassembled.

Front Body

Diamond® III/DISS III outlets can be disassembled for servicing and replacement of parts as illustrated in exploded parts breakdown (pages 10 -12).

NOTE:
Gas supply need not be turned off when removing front body - secondary check and bushing in back body prevent flow from outlet.

Adapter locking spring on Diamond® III front body housing, and front body o-ring, can be replaced by dismantling housing as follows:

1. Loosen two front body screws.

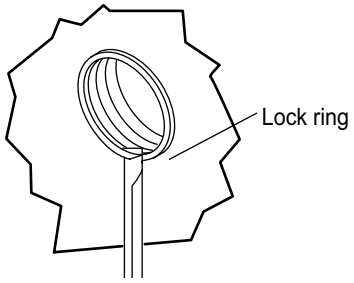
NOTE:
On recessed and surface mount outlet models, screws are held in place by rubber washers; console models use elastic stop nuts.

2. Carefully remove front body assembly from back body assembly.
3. Using needle-nose pliers, crush inside flange of brass eyelets and remove from assembly.
4. Remove and replace all worn or damaged parts.
5. New brass eyelets must be used when re-assembling front body assembly. Insert eyelets and flare rear of each with 60° tapered punch.

⚠ WARNING:
Be certain gas supply to outlet is shut off before disassembling back body.

Back Body

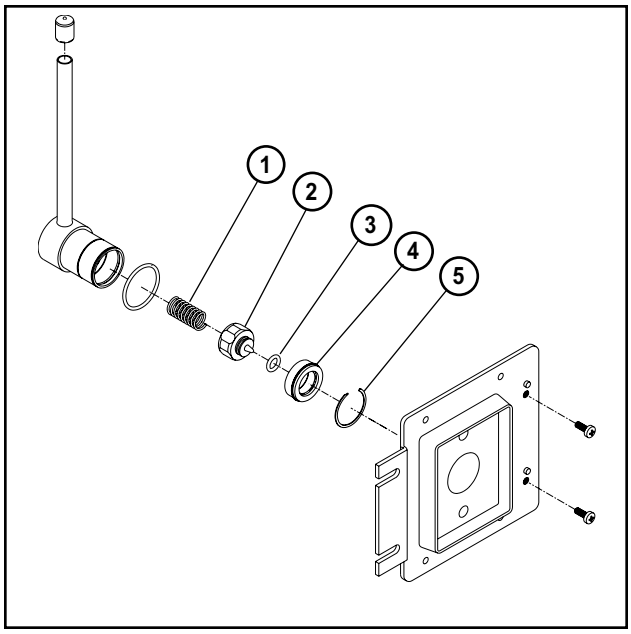
Remove internal parts from back body assembly by lifting inside (1") lock ring from rear housing with small screwdriver, as illustrated below. Carefully work rubber bushing from back body with screwdriver. Remove check unit and spring. Replace components as necessary and reassemble outlet.



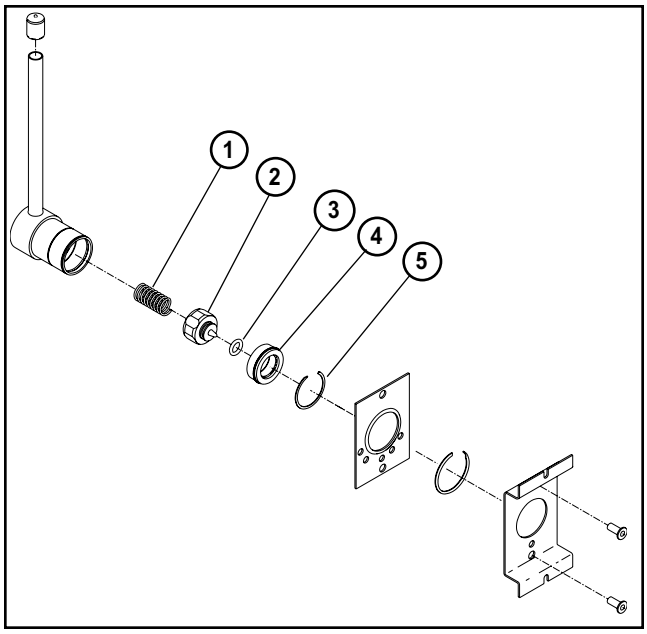
Troubleshooting Guide

Symptom	Possible Cause	Corrective Action
Quick-Connect or DISS Valve Leaks…		
• without quick-connect adapter in place.	• Faulty primary seal • Faulty rubber bushing	• Replace primary seal • Replace rubber bushing
• with quick-connect adapter in place.	• Faulty primary seal • Faulty rubber bushing • Faulty quick-connect stem	• Replace primary seal • Replace rubber bushing • Replace quick-connect stem
• without DISS nut and nipple in place	• Faulty primary seal • Faulty rubber bushing	• Replace primary seal • Replace rubber bushing
• with DISS nut and nipple in place.	• Faulty DISS nipple • Faulty O-Ring seal	• Replace DISS nipple • Replace O-Ring seal
Adapter will not engage and/or release	• Damaged adapter • Wrong adapter • Damaged frontbody assembly	• Replace adapter • Check adapter/outlet gas indexing and labels • Replace frontbody assembly
Flow Rate Does Not Meet Specification	• Piping system pressure/vacuum incorrectly set • Restriction in piping system • System demand greater than supply source or system capacity	• Reset system pressure/vacuum • Check system and/or outlet • Check supply source and system sizing
Outlet Pressure or Vacuum Does Not Meet Specification	• System pressure/vacuum not set correctly • System demand exceeds supply source capability or system capacity • Restriction in piping system or outlet	• Reset • Check supply source and system sizing • Check and remove

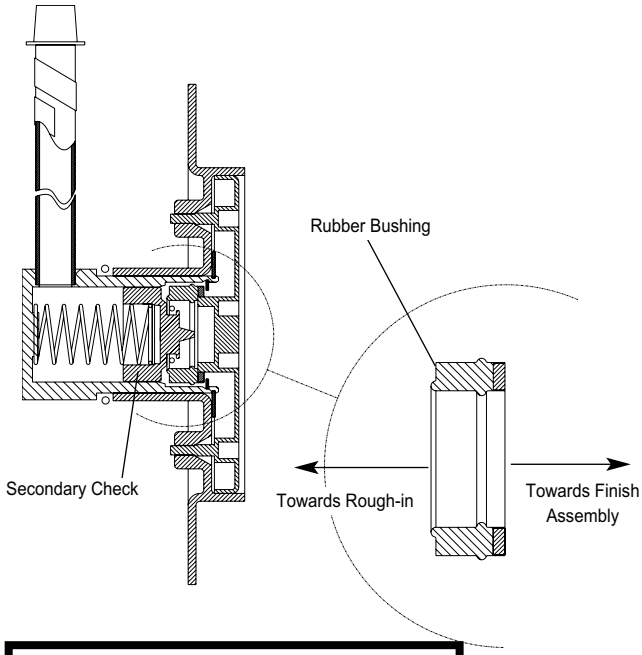
Gemini and Diamond® III Outlets



Concealed Wall Outlet Back Body



Console Wall Outlet Back Body



Item	Part Number	Description
1.	0203-3217-870	Spring (Bronze) for pressure gases (pkg of 10)
	0203-3218-870	Spring (Stainless Steel) for vacuum and WAGD (pkg of 10)
2.	6-525344-00	Secondary Check (each)
3.	0210-0491-870	O-Ring, Black (pkg of 10)
4.	6-622601-PG	Rubber Bushing (pkg of 10)
5.	6803-2030-001	Retaining Ring (pkg of 10)

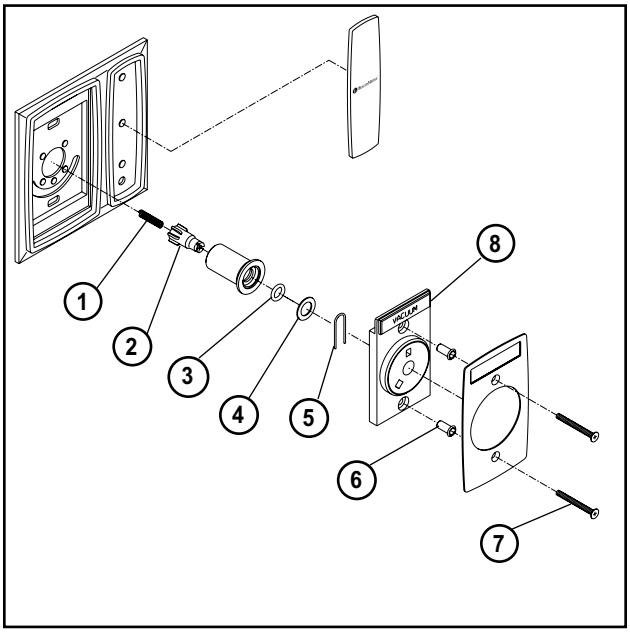
Repair Kits: *(Below Repair Kits Contain Components to Repair 10 Backbodies)*

Part Number	Description
6-290802-PG	Secondary Check Repair Kit (Pressure Service) Items 1, 3, 4, 5
6-290803-PG	Secondary Check Repair Kit (Vacuum/WAGD) Items 1, 3, 4, 5

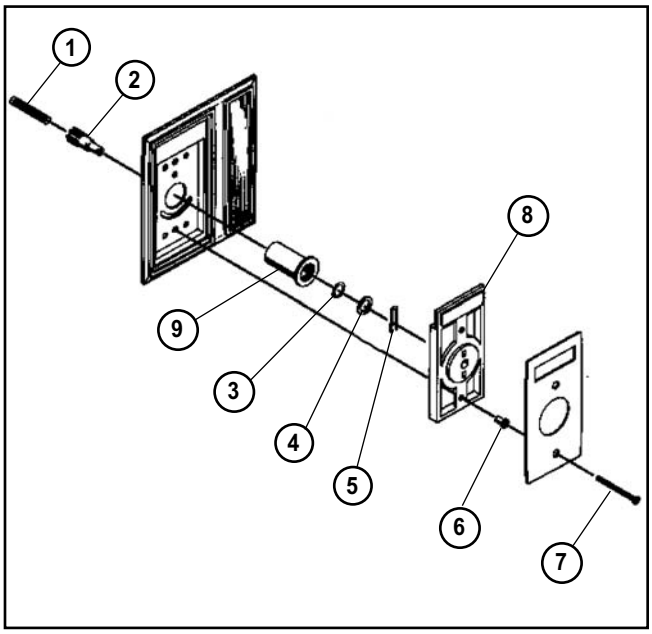
NOTE:

- Rubber bushing, item 4, must be oriented as shown for proper operation.
- When replacing rubber bushings, item 4, replacement of secondary check, item 2, is also recommended.

Gemini and Diamond® III Outlets



Gemini Quick-Connect Concealed Wall Outlet



Diamond® III Quick-Connect Wall Outlet

Item	Part Number	Description
1.	6-833436-PG	Spring (pkg of 10)
2.	0221-1587-870	Piston (pkg of 10)
3.	6-622589-PG	O-Ring, Red (pkg of 10)
4.	6-415038-PG	Washer (pkg of 10)
5.	6-833953-PG	Lock-in Adapter Spring (pkg of 10)
6.	6-831344-PG	Eyelet (pkg of 50)
7.	0140-6324-124	Screw, 6-32 x 1-1/2”
8.		Keying Disc
	6-616316-10	Oxygen
	6-616316-11	Nitrous Oxide
	6-616316-12	Medical Air
	6-616316-13	Vacuum
	6-616316-19	WAGD

Item	Part Number	Description
1.	6-833436-PG	Spring (pkg of 10)
2.	0221-1587-870	Piston (pkg of 10)
3.	6-622589-PG	O-Ring, Red (pkg of 10)
4.	6-415038-PG	Washer (pkg of 10)
5.	6-833953-PG	Lock-in Adapter Spring (pkg of 10)
6.	0203-5643-870	Eyelet (pkg of 50)
7.	0140-6324-124	Screw, 6-32 x 1-1/2”
8.		Keying Disc
	0221-1500-600	Oxygen
	0221-1501-600	Nitrous Oxide
	0221-1508-600	Medical Air
	0221-1502-600	Vacuum
	6803-2130-002	Evacuation
9.	0221-3960-500	Front Body Cylinder

Repair Kits:

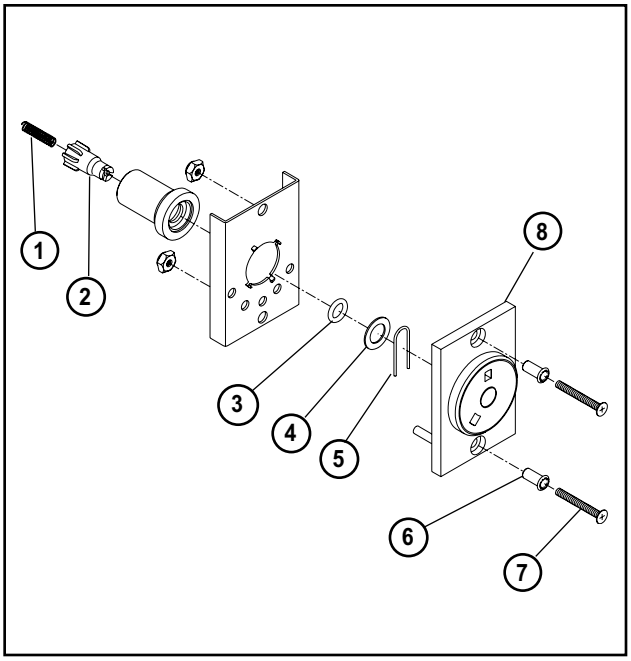
Gemini: *To repair 10 outlets, order 1 each of 6-290804-PG and 1 each of 6-831344-PG, shown as item 6.*

Diamond III: *To repair 10 outlets, order 1 each of 6-290804-PG and 1 each of 0203-5643-870, shown as item 6.*

Part Number	Description
6-290804-PG	Primary Check Repair Kit Items 1, 2, 3, 4, and 5

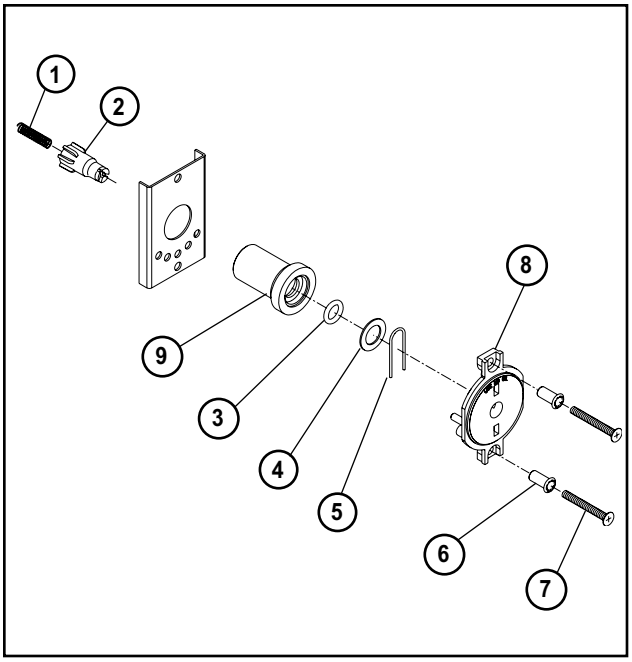
NOTE:
Do not interchange Keying Discs or Front Body Cylinders between Gemini and Diamond® III applications. Repairs may result in leakage.

Gemini and Diamond® III Outlets



Gemini Quick-Connect Console Outlet

Item	Part Number	Description
1.	6-833436-PG	Spring (pkg of 10)
2.	0221-1587-870	Piston (pkg of 10)
3.	6-622589-PG	O-Ring, Red (pkg of 10)
4.	6-415038-PG	Washer (pkg of 10)
5.	6-833953-PG	Lock-in Adapter Spring (pkg of 10)
6.	6-831344-PG	Eyelet (pkg of 50)
7.	0140-6324-124	Screw, 6-32 x 1-1/2”
8.	Keying Disc	
	6-616318-10	Oxygen
	6-616318-11	Nitrous Oxide
	6-616318-12	Medical Air
	6-616318-13	Vacuum
	6-616318-19	WAGD



Diamond® III Quick-Connect Console Outlet

Item	Part Number	Description
1.	6-833436-PG	Spring (pkg of 10)
2.	0221-1587-870	Piston (pkg of 10)
3.	6-622589-PG	O-Ring, Red (pkg of 10)
4.	6-415038-PG	Washer (pkg of 10)
5.	6-833953-PG	Lock-in Adapter Spring (pkg of 10)
6.	0203-5643-870	Eyelet (pkg of 50)
7.	0140-6324-124	Screw, 6-32 x 1-1/2”
8.	Keying Disc	
	0221-3919-600	Oxygen
	0221-3915-600	Nitrous Oxide
	0221-3921-600	Medical Air
	0221-3920-600	Vacuum
9.	0221-3960-500	Front Body Cylinder

Repair Kits:

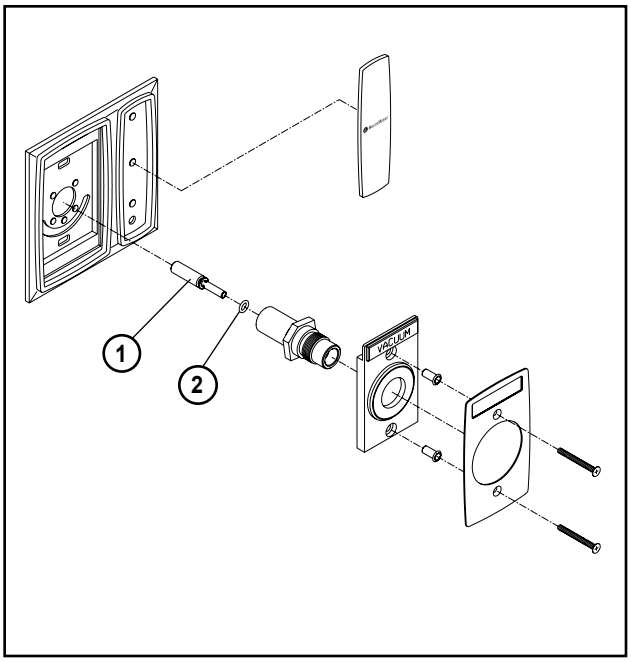
Gemini: *To repair 10 outlets, order 1 each of 6-290804-PG and 1 each of 6-831344-PG, shown as item 6.*

Diamond III: *To repair 10 outlets, order 1 each of 6-290804-PG and 1 each of 0203-5643-870, shown as item 6.*

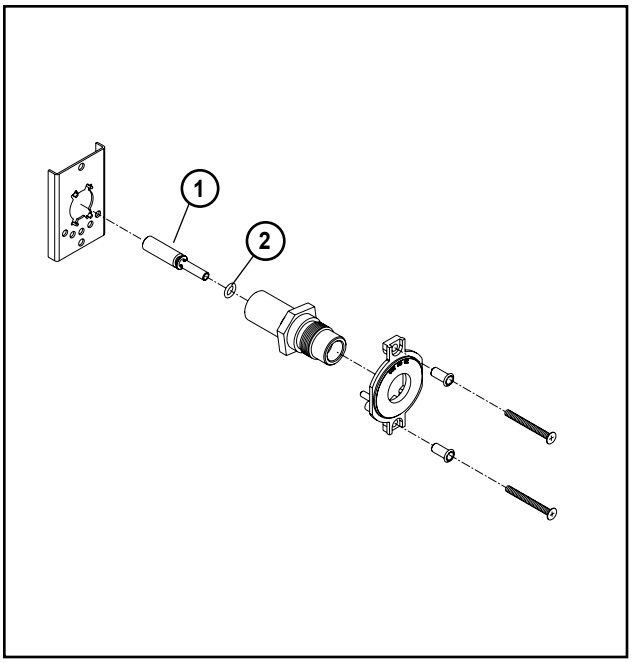
Part Number	Description
6-290804-PG	Primary Check Repair Kit Items 1, 2, 3, 4, and 5

NOTE:
Do not interchange Keying Discs or Front Body Cylinders between Gemini and Diamond® III applications. Repairs may result in leakage.

DISS Outlets



DISS Concealed Wall Outlet



DISS Console Outlet

Item	Part Number	Description
1.	---	Piston (Not available as separate item. Order appropriate repair kit below.)
2.		O-ring
	6-622585-PG	For Oxygen, Vacuum, Evacuation and WAGD (pkg of 10)
	6-622586-PG	For N2O, Air, N2 and CO2 (pkg of 10)

Refer to page 6 for complete replacement assemblies.

Repair Kits: *(To repair 10 outlets, order 1 repair kit for appropriate gas service)*

Part Number	Description
6-290805-PG	Primary Check Repair Kit (Oxygen)
6-290806-PG	Primary Check Repair Kit (N2O, Air, N2 and CO2)
6-290807-PG	Primary Check Repair Kit (Vacuum and Evacuation)
6-290808-PG	Primary Check Repair Kit (WAGD)

NOTE:
Repair Kits are not interchangeable between EVACUATION and WAGD services. Be certain to order correct repair kit.

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